

## Notes on *Hovea* R.Br. (Fabaceae): 6

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### ABSTRACT

Accounts of *Hovea linearis* (Sm.) R.Br., *H. longifolia* R.Br. and *H. acutifolia* A.Cunn. ex G.Don are provided. *Hovea linearis*, *H. heterophylla* A.Cunn. ex Hook.f., *H. heterophylla* forma *decipiens* Domin, *H. longifolia* and *H. acutifolia* are lectotypified.

### Introduction

While continuing studies of the eastern Australian *Hovea* species, it became apparent that the description of *H. linearis* was based on discordant elements. This opportunity is taken to lectotypify the species in a manner that preserves the traditional and current usage of the name and to provide an account of the species. Accounts are also provided of *H. longifolia* and *H. acutifolia* and a lectotype is selected for each. Bentham, *Fl. Austral.* 2: 172 (1864), adopted a very broad concept of *H. longifolia*, as a result of which the name has been widely used for plants from South Australia, Queensland, New South Wales, Victoria and Tasmania. However, the species has a fairly restricted distribution in New South Wales. Attention is drawn to the range of morphological variation encountered within *H. acutifolia* and to difficulties experienced in naming some specimens with certainty.

### Taxonomy

**1. *Hovea linearis*** (Sm.) R.Br. in W.T.Aiton, *Hortus Kew.* edn 2, 4: 275 (1812); Edwards, *Bot. Reg.* 6: t.463 (1820); DC., *Prodr.* 2: 115 (1825); Lodd., *Bot. Cab.* 13: t.1222 (1827); Paxton, *Bot. Mag.* 12: 75 (1846); Benth., *Fl. Austral.* 2: 172 (1864); Stanley & E. Ross, *Fl. South-eastern Queensland* 1: 270 (1983); Thompson & Lee in Lee & Thompson, *Fl. New South Wales* 101(2): 135 (1984). *Poiretia linearis* Sm., *Trans. Linn. Soc. London* 9: 304 (1808) *comb. illegit.* *Plusicarpus linearis* (Sm.) Poir. in Lamarek & Poiret, *Encycl. méth. Bot.*, suppl. 4: 400 (1816). TYPE: New South Wales, Port Jackson, 1791, J. White s.n. LECTOTYPE (**here selected**): LINN (sheet 1190.1 *pro parte*.) *Hovea heterophylla* A.Cunn. ex Hook.f., *Fl. Tasmaniae* 1: 93 (1856), t.15 (1855); Benth., *Fl. Austral.* 2: 172 (1864); Domin, *Biblioth. Bot.* 22: (89<sup>2</sup>): 728 (1925); J.M. Black, *Fl. S. Australia* edn 2: 447 (1948); Burbidge & Gray, *Fl. Austral. Cap. Territ.* 218 (1970); J.H. Willis, *Handb. Pl. Victoria* 2: 281 (1973); W.M. Curtis, *Student's Fl. Tasmania* edn 2, 1: 148 (1975). TYPE: Tasmania, 1833, R. Gunn 139. LECTOTYPE (**here selected**): K. *Hovea heterophylla* forma *decipiens* Domin, *Biblioth. Bot.* 22 (89<sup>2</sup>): 175 (1925). TYPE: prope Brisbane River, Queensland, A. Dietrich s.n. LECTOTYPE (**here selected**): HBG; ISOLECTOTYPES: BRI 345555, HBG (3 sheets), NSW 166774, PR 527083, 527084, PRC.

*Subshrub* to 1 m high, stems usually several, slender, procumbent, straggling or erect, sparingly to densely clothed with appressed to slightly spreading antrorse hairs. *Leaves* usually dimorphic, lamina of lower leaves usually ovate or elliptic, rarely rotund, (0.3-)1-5 cm long, (0.2-)0.5-1.3(-1.6) cm wide, lamina of upper leaves linear, linear-oblong or narrow ovate-oblong, 1.4-11 cm long, 0.3-0.7(-1) cm wide, the lamina

arched up slightly on either side of the midrib and the margins slightly recurved, upper surface glabrous and usually minutely bullate, lower surface sparingly to densely clothed with more or less appressed hairs; petiole 1-2 mm long, pubescent like the stem. *Stipules* subulate, 0.8-1.8 mm long, reflexed apically, persisting for some time and often glabrescent. *Inflorescence* axillary, sessile or on peduncles up to 1 mm long, rarely auxotelic with growth extending apically, mostly 2- or 3-flowered. *Flowers* pedicellate, the pedicels up to 3 mm long, densely clothed with appressed to slightly spreading hairs; bracteoles narrow-ovate or oblong, 1-1.75 mm long, much shorter than the calyx-tube, tips often recurved, densely pubescent like the pedicel and bract; bract inserted 0.8-1.5 mm below the bracteoles, 0.8-1.75 mm long. *Calyx* densely clothed externally with predominantly long appressed or slightly spreading antrorse hairs: 2 upper lobes 4.8-5.8 mm long including the tube 1.8-3 mm long, 3 lower lobes 1.8-3 mm long, acute apically. *Standard* 7-9 mm long, 7.4-10 mm wide, pale mauve (rarely white); wings 6.4-8.5 mm long, 2.4-3.7 mm wide; keel petals 4.5-5.4 mm long, 2.2-2.7 mm wide. *Stamen-filaments* 3-5.5 mm long. *Ovary* sessile, 1.3-1.8 mm long, 2-ovulate, usually pubescent basally, apically and along the sutures but sometimes pubescent throughout. *Pods* sessile, obliquely globular, ovoid or ellipsoid or sometimes transversely elliptic, 0.75-1.2 cm long, 0.7-1.05 cm wide, 0.55-0.65 cm thick, external surface of valves with appressed usually ferruginous hairs throughout, on the sutures only, or sometimes glabrous, internal surface glabrous or with few scattered weak hairs. *Seeds* elliptic, plump, 3.4-4.5 mm long, 2.2-3.4 mm wide, 2.4-3.4 mm thick, black, hilum linear, the aril extending for less than  $\frac{1}{2}$  to  $\frac{2}{3}$  the length of the seed. (Fig. 1)

#### DISTRIBUTION AND ECOLOGY

The most widely distributed species in the genus extending from southern Queensland southwards to Tasmania and westwards through Victoria into south-eastern South Australia (Fig. 2). Occurs usually in open forest or woodland or in heathland where it favours sandstone, granite and limestone formations, shallow stony soils and sandy soils.

#### TIPIFICATION

It is clear from the protologue that when J.E. Smith described *Poiretia linearis* he had available specimens sent from New South Wales and material from a plant which flowered in Hibbert's garden in Clapham in 1798. In response to a request, Mr N.S. Lander photographed the type material of *P. linearis* housed in LINN (sheet 1190.1). The photographs confirmed that two different collections are present on this sheet: five twigs numbered 1 collected by White at Port Jackson in 1791 and one twig numbered 2 from Hibbert's garden at Clapham in 1798. The photographs suggested that, although superficially similar, the two collections mounted on the sheet of 1190.1 represented discordant elements. This was confirmed subsequently by Mr Lander who matched specimens sent on loan from MEL against the type material at LINN.

The material collected by White consists of flowering and fruiting specimens whereas the twig from Hibbert's garden is in young bud. It is clear from the protologue that the description of *P. linearis* was based largely, if perhaps not entirely, on the material collected by White. All of the information on pods, and it should be remembered that Smith erected the genus *Poiretia* principally upon the nature of the pod, and seeds must have come from White's specimens and, as the flowers on the Hibbert specimen are in bud, it is likely that the description of the flowers was taken from the White specimens too. The description of the stipules is also from the White material as the stipules are not evident on the Hibbert specimen. The description of the leaves and stem could have come from either the White or the Hibbert material.

The material collected by White is selected here as the lectotype of *P. linearis*, a choice which preserves the traditional and current usage of the name. The specimen from Hibbert's garden is a twig of *H. longifolia* which is interesting as it reveals that this species was in cultivation in England at least seven years earlier than it was thought to have been introduced by R. Brown.

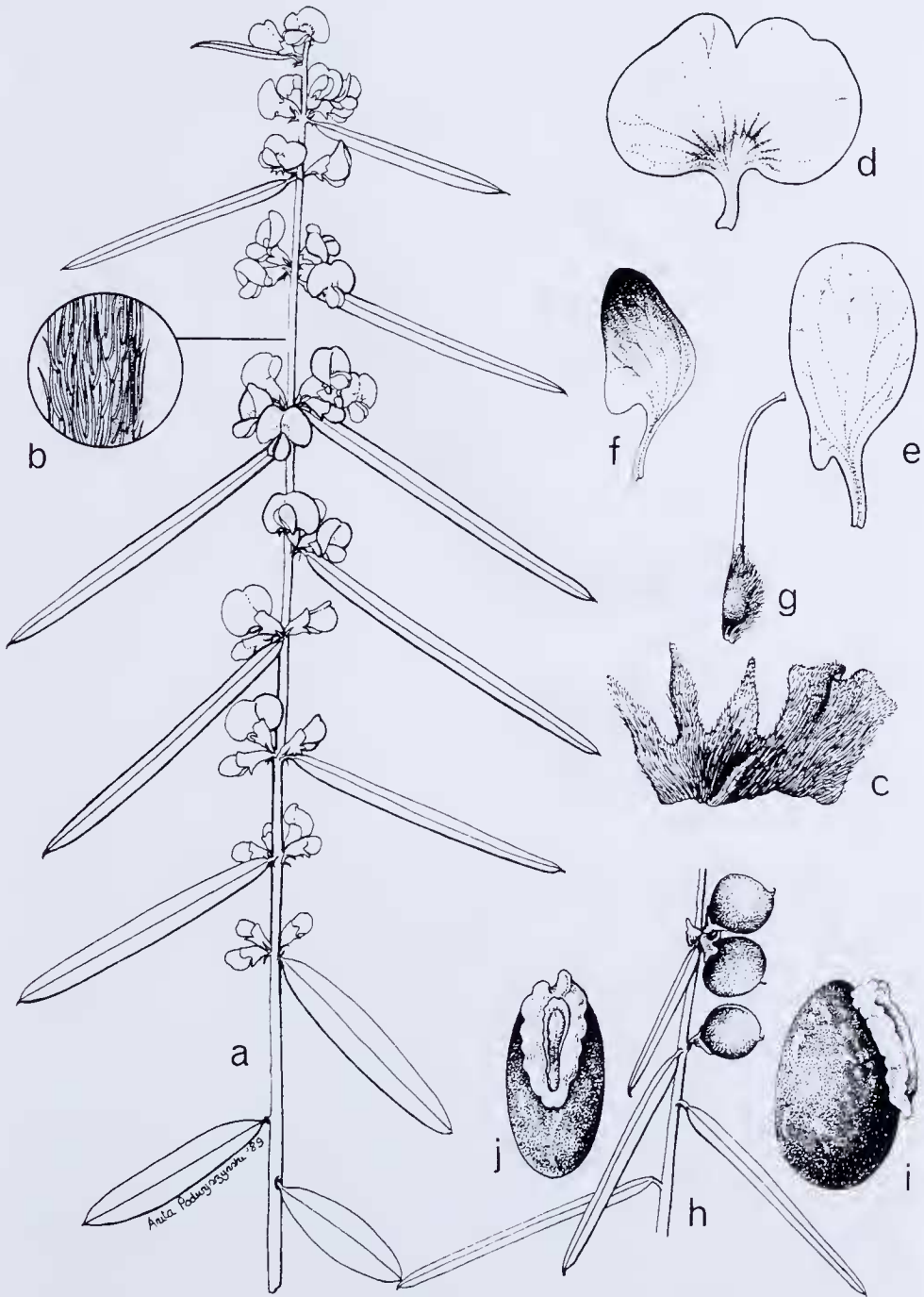


Fig. 1. *Hovea linearis*. a - flowering twig, x1. b - section of young stem showing the appressed antrorse hairs, x12. c - calyx open out (upper lobes on right), x4. d - standard, x4. e - wing petal, x6. f - keel petal, x6. g - gynoeceium, x6. h - fruiting twig, x1. i - seed, side view, x5. j - seed, hilar view x5. a and b from Muir 4835 (MEL), c-g from Muir 801 (MEL), h-j from Muir 2011 (MEL).

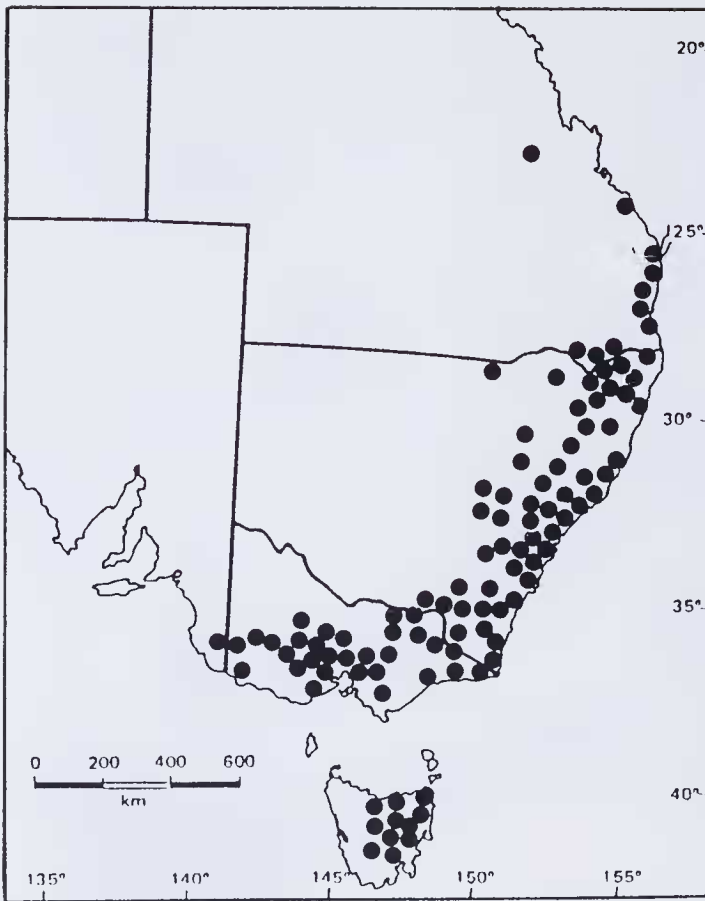


Fig. 2. Distribution of *Hovea linearis*.

Hooker (1856) adopted Cunningham's manuscript name and based his description of *H. heterophylla*, at least in part, on Tasmanian material collected by Gunn numbered 139 although he also cited in the protologue material from Tasmania collected by 'Lawrence, Gunn, etc.' and noted that the species occurred in New South Wales and in south-east Australia. The numbers accompanying Gunn's specimens are not collecting numbers but species numbers as it was his custom to give the same number to collections of what he took to be one taxonomic entity even if the specimens were collected on different dates or from different localities (Burns & Skemp, 1961; Haegi, 1982; Buchanan, 1990).

In Herbarium Hookerianum at K there are three sheets of material associated with Gunn. One sheet of flowering and fruiting material is labelled 'V.D.L. 1833 Gunn 139' in two different hands, neither of them Gunn's. A second sheet bears a label in the top right hand corner in Gunn's hand which reads '139/1842 Hobart 15/9/40' with 'R. Gunn Esq.' in another hand. However, the specimen immediately to the left of this label has written on the sheet next to it and beneath Gunn's label 'V.D.L. Scott' indicating that it was collected by Scott. The major portion of this sheet is taken up with material collected by Lawrence at Forest Formosa. It is not clear, therefore, to which specimen the Gunn label applies or whether in fact any of the material was actually collected by Gunn. A third sheet bears two fruiting and three flowering specimens and two labels, neither bearing a number, which read 'Stringy bark hill Hobartown Nov. 1840' and 'Grass tree hill Aug. 29 1840 Prostrate'. Written on this sheet below the label near the top left hand corner is 'R. Gunn Esq. V.D.Land'. Attached to this sheet are pencil drawings of details of the flowers and fruits. A fourth sheet at K, not stamped as having

been part of Herbarium Hookerianum, contains three different collections, namely, a specimen collected by R. Gunn in Tasmania and numbered 139, Milligan 522 from Tasmania, and A. Cunningham 269 collected in Aug. 1817 from Macquarie River, New South Wales. As Hooker appears to have attached special significance to the material labelled Gunn 139, the sheet in Herbarium Hookerianum clearly labelled 139 collected by Gunn in 1833 is selected here from among the syntypes as the lectotype of *H. heterophylla*.

Several collections housed in other herbaria labelled Gunn 139/1842 or 139, many in Gunn's hand, have been examined, the details of which are as follows:

- Hobart, 12/9/1839, Gunn 139/1842 (BM)
- Hobart, 15/9/1840, Gunn 139/1842 (BM, MEL 106351 ex Herb. Sonder). BRI 242484 and NSW 166758 each consist of material distributed from BM and bear a label which reads 'Hobart, 12/9/1839 and Hobart, 15/9/1840'. It is not clear whether or not each of these sheets contains a mixture of the two collections in BM numbered 139/1842 but collected on different dates.
- Degraes, Hobart, 14/12/1840, Gunn 139/1842 (NSW 166753)
- Penquite, 19/9/1841, Gunn 139/1842 (NSW 166757)
- Penquite, 18/9/1842, Gunn 139/1842 (NSW 166754)
- Penquite, 16/12/1844, Gunn 139 (HO 10724, NSW 166756)
- no data, Gunn 139 (CGE, NSW 166755, W)
- no data, Gunn s.n. (CGE ex Herb. Hook., E, W ex Herb. Hook. (3 sheets))
- Hobart, Gunn 139/1842 (CGE)

With the possible exception of the material in BM, that which was subsequently distributed from the BM to BRI and NSW, and sheets in CGE and W from Herbarium Hookerianum but bearing no data, none of the other collections would have been seen by Hooker. It would seem reasonable to regard these Gunn specimens mentioned in the previous sentence and housed in BM, BRI, CGE, and NSW (166758) as possible syntypes of *H. heterophylla*. However, in view of the uncertainty surrounding Gunn's collections, none of the remaining specimens is considered to represent type material.

Domin based his description of *H. heterophylla* forma *decipiens* on the following specimens from Queensland: 'Brisbane River, A. Dietrich s.n. (mehere exemplare); sandstone hills towards Brisbane, Leichhardt; Stradbroke Island, Fraser 1829'. Several specimens collected by Dietrich from near Brisbane are in HBG and specimens distributed from HBG have been located in BM, BRI, NSW, PR, PRC and W. Some of the specimens bear collecting numbers, for example *Dietrich 36, 46, and 77* (HBG), *Dietrich 45* (BM), *Dietrich 37* (W), which presumably indicates that they are not to be regarded as syntypes as the Dietrich specimens to which Domin referred in the protologue were unnumbered. The following unnumbered specimens have been seen: Dietrich s.n. (BRI 345555, HBG (4 sheets), NSW 166774, PR 527083, 527084, PRC, W). None of the unnumbered sheets is annotated by Domin but the two sheets in PR bear a label on which is typed '*Hovea heterophylla* A. Cunn. var. *decipiens* Domin'. Although the unnumbered Dietrich specimens are relatively uniform in appearance (all of the specimens are in flower except for one twig on one of the sheets in HBG which bears pods), there is no means of knowing whether or not they were collected at the same time and place and they are here treated as syntypes. The Leichhardt and Fraser specimens from 'towards Brisbane' and 'Stradbroke Island' respectively are in K. It is probable that Domin examined the Dietrich material that he cited in the protologue while visiting HBG. It is known that Domin requested and received some Dietrich duplicates from HBG (Sumner, 1988), but which actual specimens were received is not known. There is no evidence that Domin had in his possession at PR the two sheets of unnumbered Dietrich material collected from near the Brisbane River prior to the publication of his forma *decipiens*. The plain white label on each sheet, which has printed at the foot on the right hand side 'Rev. Dr. K. Domin' and serves in effect as a determinavit label, has typed on it '*Hovea heterophylla* A. CUNN. var *decipiens* DOMIN'. Each label bears in the bottom left hand corner a stamped 'akc. no. 23/1960' which suggests that the specimens were received or processed in 1960 rather than prior

to 1925. As a consequence, neither sheet of the PR material is selected as the lectotype. One of the sheets of unnumbered Dietrich material in HBG collected from near the Brisbane River is selected here from among the syntypes as the lectotype of *H. heterophylla* forma *decipiens* Domin.

#### NOTES

Given the difficulty often experienced in identifying *Hovea* species in eastern Australia, it seems somewhat incongruous that the most widely distributed species is also one of the easiest to recognize. *H. linearis* is characterised by the long antrorse usually appressed to slightly spreading hairs on the branchlets and the lower surface of the leaves and by the glabrous and usually minutely bullate upper leaf surfaces. The low stature of the plants and the usually reflexed stipules, which often persist for some time, further help to distinguish the species. The leaves in *H. linearis* are not always dimorphic, and this, coupled with the occurrence of dimorphic leaves in some of the other species, renders this character less useful in differentiating *H. linearis* than indicated by some other workers. An unnamed taxon from the North Kennedy District in northern Queensland with dimorphic leaves and low stature (*Conn & Clarkson 1146, Entwisle 2429, Foreman 1771*) is superficially similar to *H. linearis* but has a quite different indumentum.

Apart from the variation in leaf size and shape encountered on individual plants because of the usual presence of dimorphic leaves, a considerable amount of variation in leaf shape is present within the species. The extremes of variation encountered are exemplified by material of typical *H. linearis* from the central coastal areas of New South Wales on the one hand and material of typical *H. heterophylla* from Tasmania on the other. In the former the leaves are nearly all linear-oblong and very much longer than wide (usually at least 12 times longer than wide), the stems are often erect, and the pod valves are usually glabrous externally or the hairs are confined to the sutures and base. In typical *H. heterophylla* the leaves are more variable in shape varying from ovate or elliptic to linear-oblong or narrow ovate-oblong (usually less than 12 times longer than wide), the stems are often procumbent or prostrate, and the pod valves are usually pubescent throughout externally at least when young. Although material of typical *H. linearis* and typical *H. heterophylla* looks different, the extremes are linked and the two cannot be maintained as distinct species. Initial studies suggested that it would be possible to accord each variant formal infraspecific rank within *H. linearis* on the basis of a combination of the ratio of leaf length to leaf width and the degree of pubescence of the external surface of the pod valves. However, subsequent studies revealed the nature of the variation to be more complex and consequently the extremes are not recognized formally.

Typical *H. linearis* from the central coastal areas of New South Wales occurs within the distributional range of *H. longifolia* and some specimens of the two species are superficially similar. *H. longifolia* differs in having a different indumentum on the young stems and lower surfaces of the leaves, flowers on pedicels 4-6 mm long, the bract on the pedicel usually inserted 2.5-4 mm below the bracteoles, and grows as a large shrub.

Some specimens of *H. linearis* are superficially similar to the Western Australian *H. trisperma*. The latter differs in the nature of the indumentum on the young stems and lower surfaces of the leaves, in having larger flowers with an intense purplish-blue corolla, and glabrous pods.

#### REPRESENTATIVE SPECIMENS (total number examined 271)

SOUTH AUSTRALIA: Lower South East, 3.2 km S of Comaum Forest HQ, 3 Aug. 1966, *I.B. Wilson 497* (AD).

QUEENSLAND: Leichhardt Distr., Blackdown Tableland, ca 35 km SE of Blackwater, 3 Sep. 1971, *R.J. Henderson, L. Durrington & P. Sharpe 935* (BRI, MEL, NSW).

NEW SOUTH WALES: Port Jackson, 1836, *Sieber 375* (MEL, PRC, W).

AUSTRALIAN CAPITAL TERRITORY: 3 km ENE of Canberra City, NW slopes of Mt Ainslie, 2 Sep. 1983, *M.D. Crisp 7163* (CBG, MEL).

VICTORIA: beside Ferntree Gully railway line, 0.8 km E of Ringwood, 11 Dec. 1960, T.B. Muir 2011 (MEL).

TASMANIA: SE of Epping Forest, 6 Sep. 1967, J.H. Hemsley 6174 (HO, MEL, NSW).

**2. *Hovea longifolia*** R.Br. in W.T.Aiton, *Hortus Kew.* edn 2, 4:275 (1812); Edwards, *Bot. Reg.* 8: t. 614 (1822); DC., *Prodr.* 2: 115 (1825); Thompson & Lee in Lee & Thompson, *Fl. New South Wales* 101(2): 139 (1984). *Phusicarpos longifolia* (R.Br.) Poir. in Lamarck & Poiret, *Encycl. méth. Bot. suppl.* 4: 400 (1816). TYPE: New South Wales, Port Jackson, R. Brown. LECTOTYPE (**here selected**): BM; ISOLECTOTYPES: E, MEL 1520374. *Hovea racemulosa* Benth. in Lindley, *Edwards Bot. Reg.* 28: 39, misc. no. 36 (1842); Lindley, *Edwards Bot. Reg.* 29: t.4 (1843). TYPE: raised from seed from New South Wales (the alleged Swan River origin is incorrect), LECTOTYPE (**here selected**): K. *Hovea longifolia* R.Br. var. *normalis* Benth., *Fl. Austral.* 2: 173 (1864) *pro parte quoad specim.* 'Port Jackson, R. Brown, Sieber n. 376'. *Hovea longifolia* R.Br. forma *albiflora* Domin, *Biblioth. Bot.* 22 (89<sup>2</sup>): 729 (1925) *nom. nud.*

*Shrub* to 3 m high; branchlets densely clothed with a short understorey of curled or crinkled hairs and longer projecting hairs or sometimes the long hairs appressed and concealing any understorey. *Leaves*: lamina usually arched up on either side of the midrib and recurved so as to appear linear-oblong or oblong, (1.2-)2-8.5(-11.2) cm long, 0.18-0.85 cm wide, upper surface glabrous, glossy, the venation not raised and unduly prominent, lower surface densely clothed with an understorey of coiled or curled hairs from which scattered longer hairs project or the hairs exclusively curled or coiled and discontinuous, the hairs usually ferruginous at least on the midrib; petiole 2.5-4 mm long, densely pubescent like the branchlet. *Stipules* subulate, 1-1.5 mm long, densely pubescent, soon deciduous. *Inflorescences* axillary, subsessile or on peduncles up to 3 mm long, usually 2- or 3-flowered or sometimes the axis growing on to form a leaf-bearing shoot. *Flowers* pedicellate, the pedicels 4-6 mm long, densely clothed with long hairs which project beyond shorter curled or crinkled hairs; bracteoles ovate to oblong, 1-2 mm long, shorter than the calyx-tube, sometimes inserted a short distance below the calyx, densely pubescent like the pedicel and bract; bract 1-2 mm long, inserted (1.5-) 2.5-4 mm below the bracteoles. *Calyx* densely clothed with short coiled or curled often ferruginous hairs and longer straighter hairs: 2 upper lobes 4-5 mm long including the tube 2-2.5 mm long; the 3 lower lobes 1.3-2 mm long, the central one often somewhat reflexed. *Standard* 6.8-8.5 mm long including a claw 1.8-2.5 mm long, 8.5-9.5 mm wide, usually broader than long, slightly emarginate apically, pale mauve; wings 6-7.5 mm long including a claw 1.5-2 mm long, 2.6-3.2 mm wide; keel petals 4.5-5.2 mm long including a claw 1.5-2 mm long, 2-2.4 mm wide. *Stamen-filaments* 3.7-5.2 mm long. *Ovary* subsessile, 1.2-1.5 mm long, 2-ovulate. *Pods* sessile, obliquely globular, ovoid or ellipsoid or sometimes transversely elliptic, 0.8-1.7 cm long, 1-1.3 cm wide, densely clothed with curled ferruginous hairs externally when young and with weak white hairs internally. *Seeds* elliptic, plump, 5.5-6 mm long, 3.25-3.5 mm wide, 3-3.5 mm thick, black, hilum linear, the aril extending for almost the length of the seed. (Fig. 3)

#### DISTRIBUTION AND ECOLOGY

Occurs in coastal areas of New South Wales from Port Stephens in the north southwards to the foothills of the Southern Tablelands SW of Mt Walimma, just north of the Victoria border (Fig. 4). One specimen (NSW 166488) with a label bearing the locality 'Stanthorpe, Queensland' is a mixed gathering consisting of 5 twigs of *H. linearis* and one of *H. longifolia*. This is the only record of *H. longifolia* from Queensland and as it is so far removed from the nearest known population of the species the most likely explanation is that the label belongs with the specimens of *H. linearis* and that the specimen of *H. longifolia* was inadvertently mixed in with them. This suggestion is supported by the presence in other herbaria of apparent duplicates. collections distributed from NSW which consist entirely of specimens of *H. linearis*.

Recorded from sandy soil in dry and in wet sclerophyll forest, dry sclerophyll forest on sandstone, rocky sandstone outcrops and moist alluvial deposits along creeks and in shaded gullies.

#### TYPIFICATION

It is not clear whether R. Brown based his description of *H. longifolia* on a plant raised at Kew Gardens from seed introduced by himself in 1805 from New South Wales, whether the description was based on his specimens collected in Australia, or whether it was based on both. There is in BM a specimen of *H. longifolia* with the name 'Poiretia ferruginea' in pencil at the foot of the sheet from a plant cultivated at Kew but, as the specimen is undated and there is no means of establishing when it was collected and by whom, it is not considered for the purpose of typification.

There are in BM two sheets collected by R. Brown labelled as type collections of *H. longifolia*. One has a typed label in the upper left hand corner indicating that it was collected at Port Jackson and a printed blue label headed 'R. Brown, Iter Australiense 1802-5' in the bottom right hand corner bearing the number 5082 and in Bentham's hand 'Hovea longifolia R. Br.'. The second sheet has a typed label almost midway down the left hand side of the sheet bearing the locality 'Queensland: Port Clinton (Port II)' and the date 'Aug. 22nd. 1802', and in the bottom left hand corner in R. Brown's hand a label the verso of which reads 'Port II Shoal water bay passage' and a third small label with the name 'Hovea longifolia R. Br.' in Bentham's hand.

The two sheets in BM represent different taxa. As Brown stated in the protologue that *H. longifolia* was a native of New South Wales this eliminates the specimen collected at Port Clinton in Queensland as a type. However, the possibility exists that the seeds introduced into cultivation at Kew Gardens by Brown came from either or both New South Wales and Queensland plants. In order to obviate any confusion, the specimen numbered 5082 from Port Jackson referred to above is here selected as the lectotype of *H. longifolia*. The Port Clinton specimen represents an unnamed taxon that occurs in the Port Curtis District.

The MEL specimen (1520374) labelled as having been collected by R. Brown at Lane Cove is a good match of the lectotype in BM and is regarded as an isolectotype.

#### NOTES

Bentham, *Fl. Austral.* 2:172 (1864), treated *H. longifolia* as an 'omnibus species' by including in it several species that had been regarded formerly as specifically distinct. Because of this broad concept of *H. longifolia* adopted by Bentham, the name has been used widely since for plants from South Australia, Queensland, New South Wales, Victoria and Tasmania. However, it is clear now that *H. longifolia* is confined to New South Wales where it has a fairly restricted distribution.

*Hovea longifolia* is a relatively uniform species which is characterised by long linear-oblong or oblong narrow leaves and flowers on long pedicels with the bract usually inserted 2.5-4 mm below the paired bracteoles.

The northern limit of distribution of *H. longifolia* is a little south of the southern limit of distribution of *H. acutifolia*. Occasional specimens, for example *Burgess NSW 168360*, MEL 1558625, occur near the southern limit of distribution of *H. acutifolia* which, in the absence of flowers and fruits, bear a strong superficial resemblance to *H. longifolia* and are difficult to place with certainty. *Burgess NSW 168360* from the Manning River National Forest is sterile; all that remains are the long pedicels and the persistent bases of the calyces following the fall of the pods. *Burgess NSW 168360* bears a strong resemblance to *Burgess NSW 166424* in a similar stage of development from Glenbrook west of Sydney. There appears to be little doubt that *Burgess NSW 166424* is referable to *H. longifolia*. Despite the similarities between the two specimens, *Burgess NSW 168360* is referred with some doubt to *H. acutifolia*. Examination of the plants in the field would undoubtedly clarify the matter but these specimens illustrate the difficulty of naming incomplete atypical herbarium specimens in this genus.

The differences between *H. longifolia* and *H. linearis* are discussed under the latter.



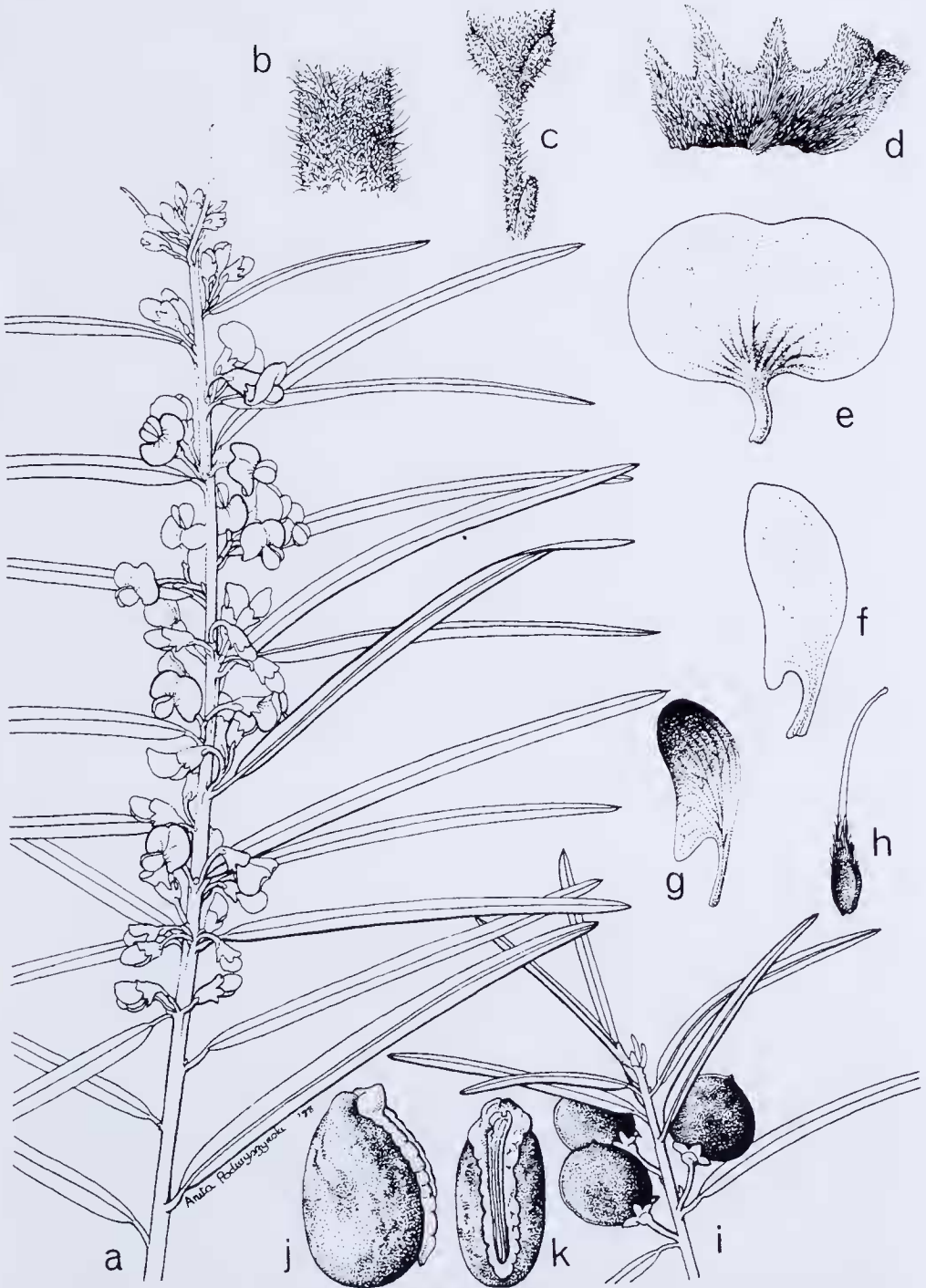


Fig. 3. *Hovea longifolia*. a - flowering twig, x1. b - section of stem showing a dense understorey of curled hairs and longer projecting hairs, x5. c - pedicel showing insertion of the bracteoles and the basal bract, x4. d - calyx opened out (upper lobes on right), x4. e - standard, x4. f - wing petal, x6. g - keel petal, x6. h - gynoecium x6. i - fruiting twig, x1. j - seed, side view, x5. k - seed, hilar view, x5. a-c from Adams 658 (MEL), d-h from Albrecht 3294 (MEL), i-k from Salasoo 2664 (NSW).

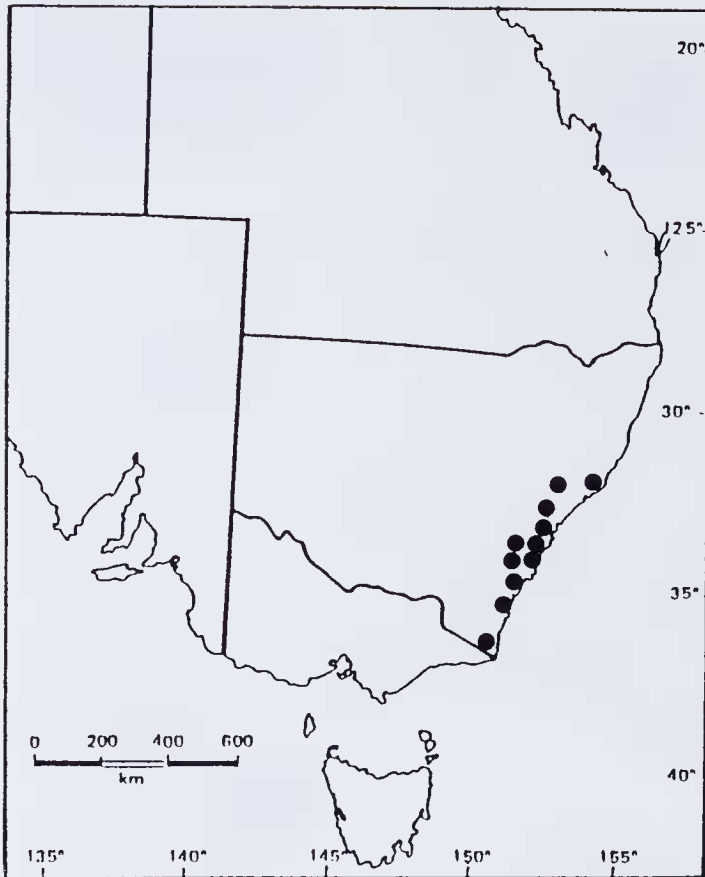


Fig. 4. Distribution of *Hovea longifolia*.

REPRESENTATIVE SPECIMENS (total number examined 82)

NEW SOUTH WALES: 8 km SE of Clyde Mountain, near Batemans Bay, 11 Sep. 1963, *L.G. Adams 658* (CANB, MEL, NSW). Tahlee, Port Stephens, 23 Oct. 1956, *E.F. Constable* (NSW 166446). Cumberland State Forest, West Pennant Hills, 29 Oct. 1976, *R. Coveny 8526* (MEL, NSW). Bent's Basin, 8.1 km S of Wallacia, 9 Sep. 1971, *B. Stevenson & R. Coveny 3642* (AD, HO, MEL, NSW). 5 km SE of Wingello, 12 Nov. 1973, *I.R. Telford 3638* (CBG, NSW). 0.5 km SW of Mt Walimma trig, 30 Aug. 1987, *D.E. Albrecht 3294* (CBG, MEL, NSW).

**3. *Hovea acutifolia*** A.Cunn. ex G.Don, *Gen. Hist.* 2: 126 (1832); Benth., *Fl. Austral.* 2: 174 (1864); Stanley & E. Ross, *Fl. South-eastern Queensland* 1: 270 (1983); Thompson & Lee in Lee & Thompson, *Fl. New South Wales* 101(2): 137 (1984). TYPE: New South Wales, W of Mt Warning, 1827, *A. Cunningham 160*. LECTOTYPE (**here selected**): BM; ISOLECTOTYPE: NSW.

*Shrub or slender tree* to 4 m high; branchlets densely clothed with curled, crinkled or straightish hairs, sometimes with longer almost straight hairs projecting beyond a shorter understorey, occasionally the majority of hairs spreading and villous, hairs usually ferruginous or grey. *Leaves*: lamina more or less flat on upper surface on either side of a depressed midrib or raised on either side of the midrib and broadly V-shaped in section, sometimes the margins slightly recurved, usually broadest at or near the middle and tapering evenly towards the apex and base but sometimes obtuse apically, elliptic or sometimes elliptic-oblong or occasionally obovate, 2.5-8(-10) cm long, 0.4-2.7 cm wide, upper surface finely reticulate, the primary lateral veins not obviously

distinct from the smaller veins, glabrous, lower surface densely clothed with curled or crinkled ferruginous hairs or with an understorey of curled or crinkled hairs beyond which longer crinkled or straight hairs project, the hairs completely obscuring the venation or the primary lateral veins and smaller ones conspicuously raised and visible through the hairs, sometimes the hairs confined to the veins and forming a pattern through which glabrous patches of lamina are visible; petiole 2-5 mm long, densely pubescent like the branchlet. *Stipules* subulate, (1-)1.5-2(-3) mm long, densely pubescent, soon deciduous. *Inflorescences* axillary, subsessile or on peduncles up to 4 mm long and usually 1-3-flowered or sometimes growth extending from apex of peduncle and inflorescence many-flowered, rarely pseudoracemose. *Flowers* pedicellate, the pedicels 1.5-4 mm long, densely pubescent like the branchlet; bracteoles narrow-ovate, 1.5-4 mm long, subacute or occasionally obtuse apically, much shorter than to almost as long as the calyx-tube, inserted at the base of or a short distance below the base of the calyx, pubescent throughout like the pedicel; bract 1-3 mm long, inserted 1-2.5 mm below the bracteoles, the apex usually overlapping the base of the bracteoles. *Calyx* densely clothed with coiled or crinkled ferruginous hairs and scattered longer often paler crinkled or straightish hairs; upper lip 4.2-5.5 mm long including the tube 2-3 mm long; the 3 lower lobes 1.8-2.5 mm long, 1.5-2 mm wide, deltoid. *Standard* 9-10.5 mm long including a claw 2-2.8 mm long, 9-13 mm wide, usually slightly wider than long, mauve with a greenish-yellow basal flare; wings 7.5-9 mm long including a claw 2-2.5 mm long, 3-4.4 mm wide; keel petals 5-5.5 mm long including a claw 1.8-2.4 mm long, 2-2.6 mm wide, auricled. *Stamen-filaments* 3.2-5.8 mm long. *Ovary* sessile or subsessile, 1.5-2 mm long, 2-ovulate. *Pods* on a stipe up to 1 mm long, obliquely ellipsoid, ovoid or globular, sometimes transversely so, 0.9-1.6 cm long, 0.9-1.2 cm wide, densely clothed with curled ferruginous hairs externally when young but glabrescent, sparingly to densely clothed with curled or straightish hairs internally. *Seeds* blackish, plump, 4.5-6.5 mm long, 3-3.6 mm wide, 2.9-3.3 mm thick, hilum linear, the aril extending for almost the length of the seed or for the entire length of the seed. (Fig. 5)

#### DISTRIBUTION AND ECOLOGY

Occurs in southern Queensland and northern New South Wales from Fraser Island in the north to the Manning River in the south. (Fig. 6). Mainly a coastal species which favours rainforest margins, edges of swampforest or similar favourable conditions such as stream banks and fertile soil but also recorded from sandy heath and coastal wallum, wet sclerophyll forest, open *Eucalyptus* forest and stony hillsides.

#### TYPIFICATION

The description of *H. acutifolia* was based in part at least, if not entirely, on material collected by Cunningham. There are at K two specimens labelled as having been collected by Cunningham at Mt Lindsay (Mt Barney, *vide* Telford, 1990), New South Wales, in 1828. Both specimens came via R. Heward; the specimen numbered 160 mounted in the top left hand corner of the sheet was presented to K by Heward in 1862 and the other, also mounted on the left hand side of a sheet but lacking a collecting number, was presented to K in 1915 by the Linnean Society of London which had earlier acquired it from Heward. Two sheets collected by Cunningham are present in BM. Both are numbered 160 and are labelled as having been collected in 1827 W of Mt Warning. A duplicate from BM is present in NSW.

The two specimens at K were collected a year later and from a different locality to the two specimens at BM, but the four specimens and the duplicate in NSW from BM are regarded as syntypes of *H. acutifolia*. I here select the specimen in BM mounted on the left hand side of the sheet (the right hand side of the sheet is occupied by a specimen collected by G. Podenzana from Brisbane in Oct. 1891) from among the syntypes as the lectotype of *H. acutifolia*.

## NOTES

In its typical form, *H. acutifolia* is distinguished readily from other eastern state species by its distinctive broad (usually 1-2.4 cm wide) elliptic leaves which are broadest at or near the middle and taper evenly to each end. Occasionally, and especially on Fraser Island, the leaves are narrow (0.4-0.6 cm wide), for example *Walsh 1386* (MEL), but, as many are still distinctly elliptic the specimens are referable to *H. acutifolia* without difficulty. In New South Wales, and often near the southern range of distribution of the species, the leaves are narrow (less than 0.8 cm wide) linear-oblong, oblong or slightly obovate-oblong, for example *Burgess NSW 168361* from the Manning River National Forest, *Coveny NSW 168358* from Bird Lime Tree, c. 9.6km W of the Pacific Highway, *Maiden & Boorman NSW 168362* from Ellenborough Falls, and such specimens are reminiscent of *H. longifolia*. When in flower the specimens are distinguished readily from *H. longifolia* as the flowers are on shorter pedicels, the bracts and bracteoles are longer and the distance between the points of insertion of the bracteoles and bract on the pedicel is less. Some sterile specimens are more difficult to place with certainty and reference to them is made under *H. longifolia*.

Of greater concern are specimens, for example *Constable 7046* (NSW) from Old Man Gibber Mountain, *Blaxell NSW 168370* from Little Styx River near Ebor, *Blakely & Shiress NSW 168354* from the Orara River, 16 km S of Ramornie, which are reminiscent of *H. pannosa*. Typical *H. pannosa* is readily distinguishable from typical *H. acutifolia* but the range of morphological variation encountered within each species, and especially within *H. pannosa*, tends to obscure the limits of each species and makes it exceedingly difficult to place some specimens with certainty. Fortunately the number of specimens in question is quite small (less than 2.5% of specimens examined in *H. acutifolia* and *H. pannosa*). It is likely that examination of the plants in the field would enable these difficult specimens to be placed quite readily. My inclination is to refer *Constable 7046* and *Blakely & Shiress NSW 168354* to *H. acutifolia* as some of the flowers in each specimen are on distinct peduncles, a feature common in *H. acutifolia* but infrequent in *H. pannosa*. The placement of *Blaxell NSW 168370* is more problematical and it is referred with some doubt to *H. acutifolia*. The relationship of *H. acutifolia* to *H. pannosa* and to some other taxa in southern Queensland requires clarification.

## REPRESENTATIVE SPECIMENS (total number examined 221)

QUEENSLAND: Moreton District, Oxenford, S of Brisbane, 17 Aug. 1930, *C.E. Hubbard 3691* (BRI). Moreton District, 4.7 km W of Beerwah on road to Peachester, 25 Aug. 1986, *J.H. Ross 3150* (BRI, CBG, MEL). Wide Bay District, Fraser Island, western shore of Lake Garawongera, Aug. 1984, *N.G. Walsh 1386* (BRI, MEL).

NEW SOUTH WALES: Pimlico, 8 km SW of Ballina, 23 Oct. 1961, *E.F. Constable 1401* (BRI, MEL, NSW). Broken Head, 8 km S of Byron Bay, 24 May 1962, *E.F. Constable 3013* (BRI, MEL, NSW). Brunswick Heads, 28 Aug. 1972, *R. Coveny 4302 & J. Armstrong* (CANB, CBG, MEL, NSW).

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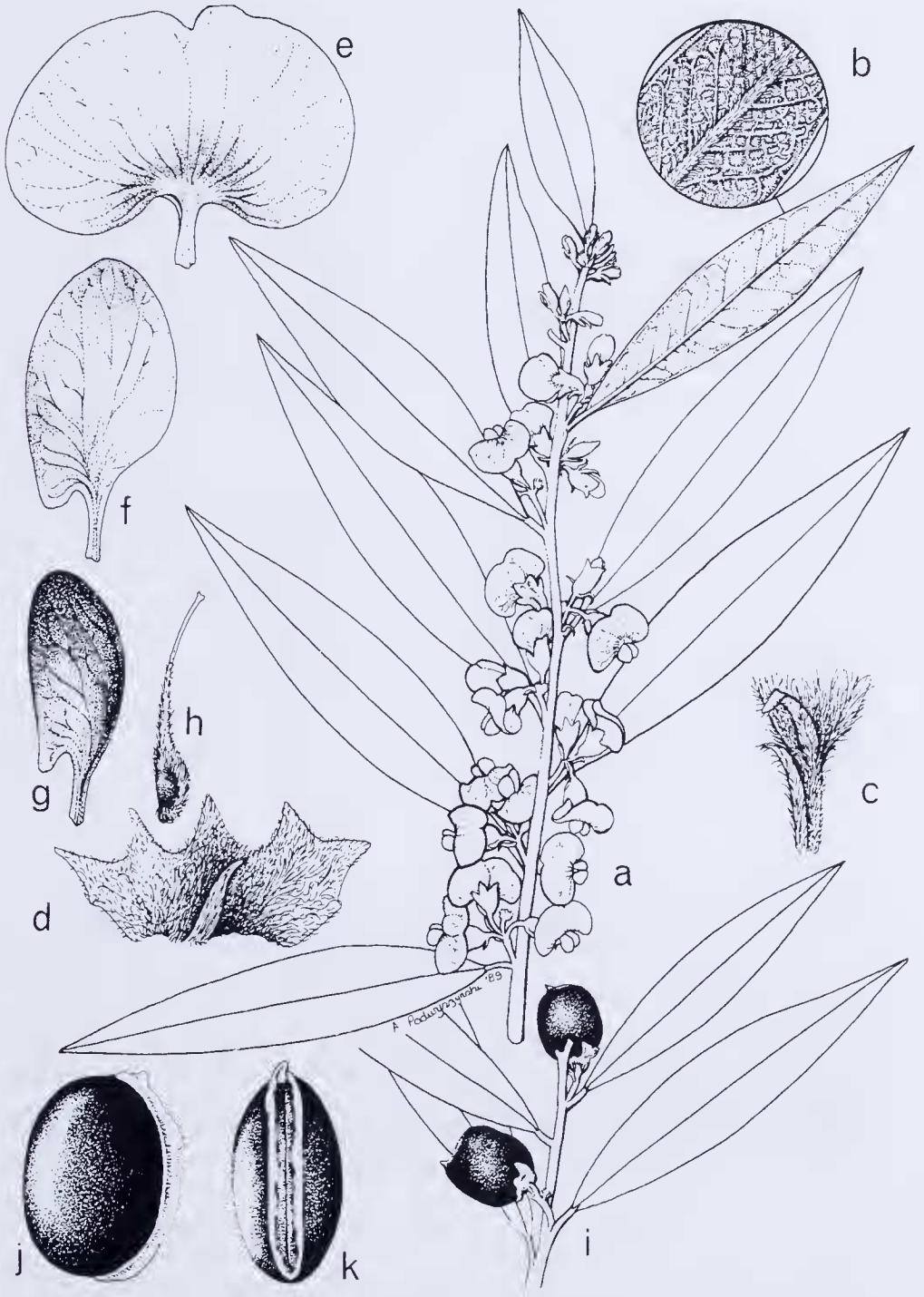


Fig. 5. *Hovea acutifolia*. a - flowering twig, x1. b - lower surface of leaf showing venation and disposition of indumentum, x2.5. e - pedicel showing insertion of bracteole and basal bract, x4. d - calyx opened out (upper lobes on right), x4. e - standard, x4. f - wing petal, x6. g - keel petal, x6. h - gynoceium, x6. i - fruiting twig, x1. j - seed, side view, x5. k - seed, hilar view, x5. a-d from Hubbard 3088 (MEL), e-h from Ross 3150 (MEL), i-k from Constable 6516A (NSW).

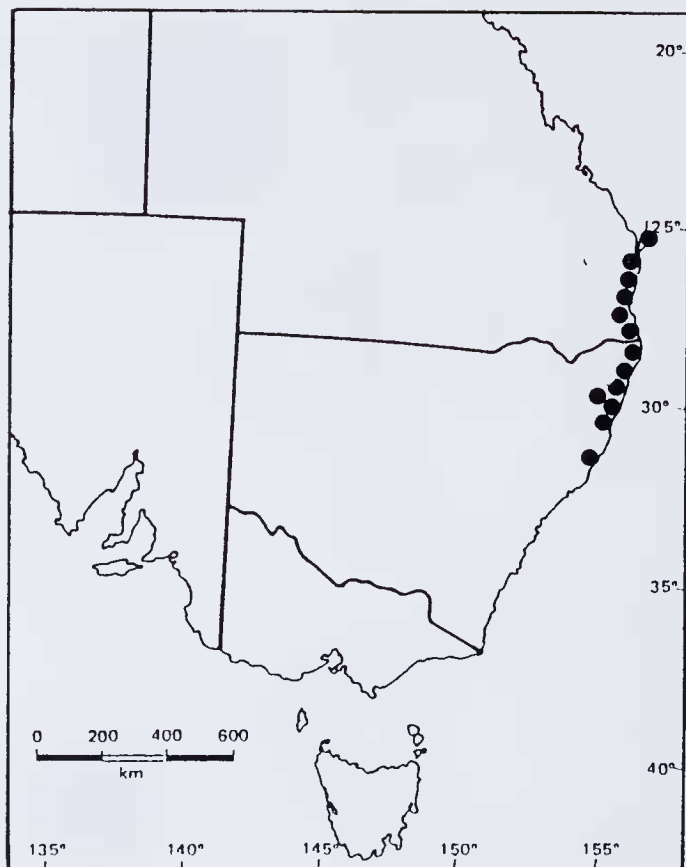


Fig. 6. Distribution of *Hovea acutifolia*.

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